United States Patent [19]

VerMehren

[11] **Patent Number: 4,624,408**

[45] **Date of Patent: Nov. 25, 1986**

[54] **CARRIER SHEET ASSEMBLY INCLUDING CONTINUOUSLY OVERLAPPED ENVELOPES AND LETTER HEADS**

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[21] Appl. No.: **701,732**

[22] Filed: **Feb. 14, 1985**

Related U.S. Application Data

[62] Division of Ser. No. 449,519, Dec. 13, 1982, Pat. No. 4,514,182.

[51] **Int. Cl.**[4] **B65D 27/10**

[52] **U.S. Cl.** **229/69**

[58] **Field of Search** ..... 229/69; 282/11.5 A, 282/25; 493/216

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,456,869	7/1969	Paulson	229/69
3,554,447	1/1971	Sebring	229/69
4,091,987	5/1978	Cone	229/69
4,335,845	6/1982	Dierks	229/69
4,454,980	6/1984	Poehler	229/69

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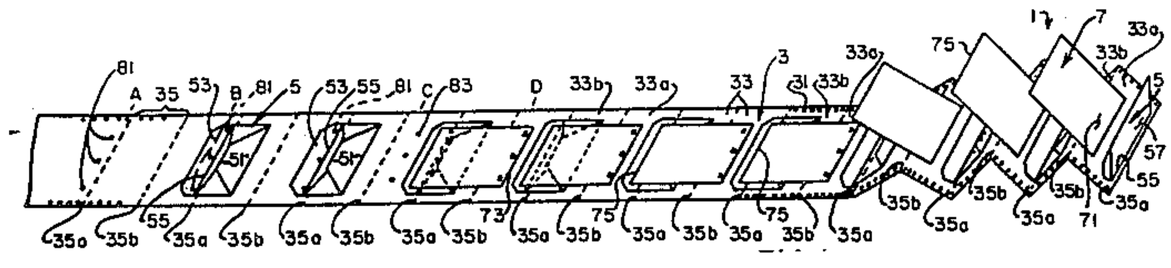
[57] **ABSTRACT**

Envelopes and letter sheets are mounted on a continuous carrier in such a manner that they alternate and are continuously shingled. The envelope flaps are first affixed to the carrier sheet, with the envelopes in an open position and with their flap folds adjacent and parallel to infolds between carrier sheet panels. The letter sheets are then affixed to the same panels, with the free end of each sheet extending across both an outfold and the next infold. When the carrier sheet is fanfolded, each envelope closes over the top margin of the following letter sheet, and the lower margin of each letter sheet extends across the upper margin of the following envelope.

6 Claims, 4 Drawing Figures



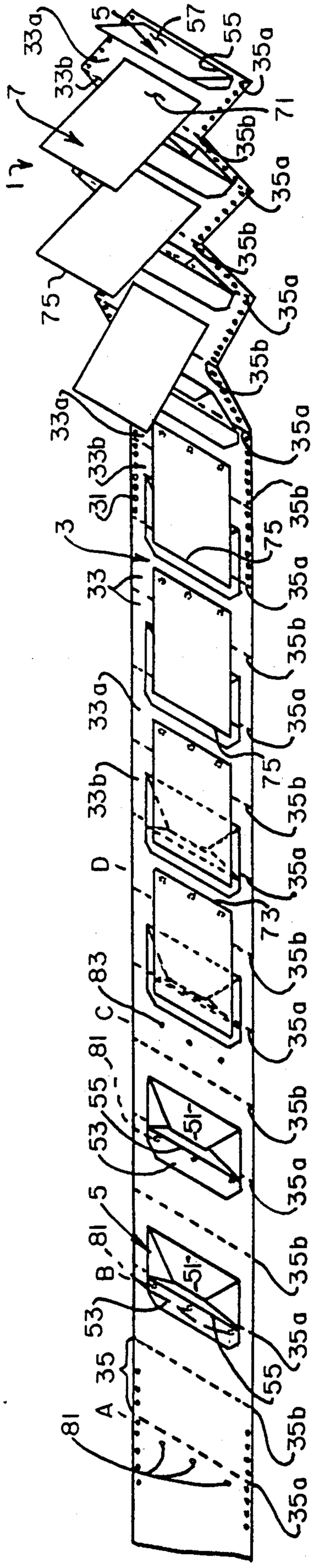


FIG. 1.

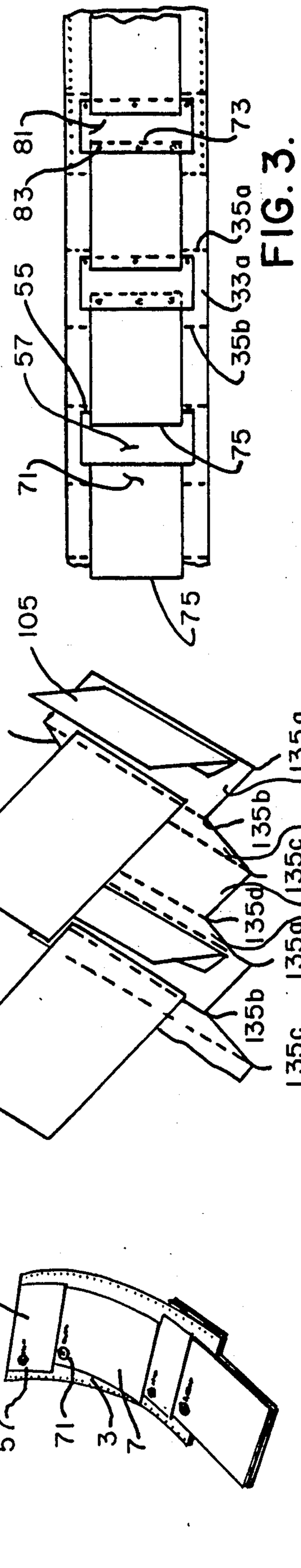


FIG. 3.

FIG. 4.

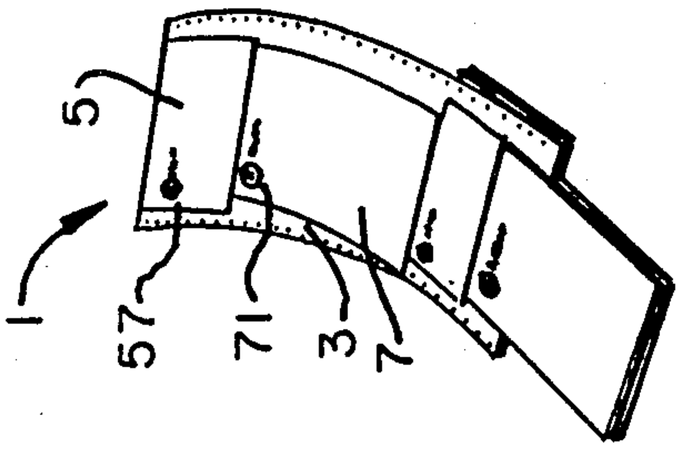


FIG. 2.

CARRIER SHEET ASSEMBLY INCLUDING CONTINUOUSLY OVERLAPPED ENVELOPES AND LETTER HEADS

This is a division of application Ser. No. 449,519 filed Dec. 13, 1982, now U.S. Pat. No. 4,514,182.

BACKGROUND OF THE INVENTION

This invention relates to a method of affixing or "tipping on" envelopes and letter paper onto a fanfolded continuous carrier sheet, and the resulting assembly.

Word processing systems of various types have made it possible to produce documents at high speed. The term "word-processing systems" is used broadly herein, and includes such devices as memory typewriters and computers equipped with an output printer. To accommodate the speed of such systems, it is now common practice to mount documents to a continuous carrier sheet which may be run continuously through the word processor printer. The documents may be of various types, such as letterhead stationery, envelopes, multilayer snap sets, although generally documents of only a single type are used on a single carrier sheet. Mounting documents to a carrier sheet in such a way that the documents are easily removable from the sheet is known as affixing or "tipping on" the documents. Typically, the documents are held to the carrier sheet by spots or patterns of a strippable glue. The carrier sheet is conveniently fanfolded in a short form, such that the panels are substantially shorter than the documents. The documents are attached to alternate panels of the carrier, and all documents therefore face upward on the folded carrier sheet. A typical short form, fanfolded carrier with affixed documents is described in Cone, U.S. Pat. No. 4,091,987.

For the proper feeding of carrier-mounted documents, it is important that the documents be overlapped or shingled, so that the upper edge of each succeeding document lies under the lower edge of the previous document as they move through a word processor printer. As shown in U.S. Pat. No. 4,091,987, this arrangemnt requires that the total length of two adjacent panels be somewhat less than the length of the document. Mounting the documents at high speed in this fashion, however, is difficult. The complexity of the required machinery is exemplified by Cone, U.S. Pat. No. 4,270,967. In that patent documents of the same type (either letters or envelopes) are first overlapped, then fed in overlapped condition to a pre-glued carrier sheet.

For many applications, it would be desirable to supply a carrier sheet in which envelopes and letter sheets are positioned alternately on a carrier sheet. Such an arrangement would permit a letter and its envelope (or an envelope and its letter) to be printed sequentially, without the necessity of separately feeding two different carrier sheets through the word processor printer, and would greatly simplify matching letters to the proper envelope. The problem, and one solution to the problem, are set out in Dierks, U.S. Pat. No. 4,335,845. Dierks' solution to the problem of providing both letter sheets and envelopes on a standard fanfolded carrier sheet is to provide a unique envelope-letter sheet device which is attached to each panel of a fanfolded standard carrier. This solution has a number of drawbacks.

A similar approach has been utilized by Moore Business Forms, Inc. of 1205 N. Milwaukee Ave., Glenview, Ill. 60025 to affix pre-printed envelopes and letter sheets to a single panel of a standard carrier sheet. Each envelope is affixed on the same panel as a letterhead sheet, in a separate glueing operation. This approach has substantial advantages over Dierks' approach. For example, it allows the letter sheet to be preprinted or to be a multiple layer snap set.

Neither Dierks' system nor Moore Business Forms' system permits continuous overlapping of the documents. Envelopes overlap letter sheets, but letter sheets do not overlap the envelopes on succeeding carrier sheet panels

SUMMARY OF THE INVENTION

One of the objects of this invention is to provide a method of mounting separate envelopes and letter sheets alternately on the same carrier sheet, with the envelopes and letter sheets continuously overlapped. In other words, each document is shingled over the succeeding document.

Another object is to provide such a method in which the envelopes and letter sheets may be of any desired standard form, such as preprinted or embossed letterhead stationery and envelopes.

Another object is to provide such a method in which the envelopes and letter sheets may be placed on the carrier sheet at high speed, without the necessity of overlapping them before mounting them on the carrier sheet.

Another object is to provide an article of manufacture comprising continuously shingled separate envelopes and letter sheets affixed alternately on a short form fanfolded carrier sheet.

Other objects will occur to those skilled in the art in light of the following description and accompanying drawings.

In accordance with one aspect of this invention, generally stated, a method is provided by which envelopes and letter sheets are mounted on a continuous carrier in such a manner that they alternate and are continuously shingled. The envelope closure flaps are first affixed to the carrier sheet, with the closure flaps in an open position and with the envelope flap folds adjacent and parallel to infolds between carrier sheet panels. The letter sheets are then affixed to the same panels, with the free end of each sheet extending across both an outfold and the next infold. The open envelopes do not overlap the spots on which the letter sheets are glued, and therefore the method does not require shingling of the envelopes and letter sheets before they are attached to the carrier sheet. When the carrier sheet is fanfolded, each envelope closes over the top margin of the following letter sheet, and the lower margin of each letter sheet extends across the upper margin of the following envelope.

This method allows for production of a novel carrier sheet system in which continuously shingled separate letter sheets and envelopes are affixed to a carrier sheet. The finished system includes a fanfolded carrier sheet, on alternate panels of which are attached both an envelope and a letter sheet. The closure flap of the envelope is affixed to the carrier sheet, and the envelope overlaps the upper edge of the letter sheet. The upper end of the letter is affixed to the carrier sheet, below the envelope, and the letter sheet extends beyond the edge of the panel to which it is mounted by a distance greater than the length of the succeeding panel of the carrier sheet. The letter sheet therefore overlaps the succeeding envelope when the carrier sheet is extended.

The invention is quite flexible in accommodating letter sheets and envelopes of various sizes, envelopes of varying designs, and letter sheets and envelopes with or without pre-printed or pre-embossed letterheads or designs. The size of the panels of the carrier sheet may also be varied easily, to accommodate different length letter sheets, for example.

If desired, the bodies of the envelopes may be glued down to aid refolding the carrier sheet after it has passed through a word processor printer.

Other aspects of the invention will best be understood in light of the following description of the preferred embodiment and the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing, FIG. **1** is a view in perspective illustrating the process of the present invention.

FIG. **2** is a view in perspective of a carrier sheet system of the present invention.

FIG. **3** is a top plan view of the carrier sheet system of FIG. **2**, with the carrier sheet extended.

FIG. **4** is a view in perspective of a second embodiment of carrier sheet system of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing, and in particular to FIG. **1**, reference numeral **1** indicates a carrier sheet system of the present invention. The carrier sheet system **1** is in the process of being formed by the method of the invention, with the steps of the invention being carried out from left to right in the drawing. The carrier sheet system **1** includes a carrier sheet **3**, envelopes **5**, and letter sheets **7**.

The carrier sheet **3** is illustratively a standard paper carrier sheet having a width of $11\frac{3}{4}''$. The carrier sheet **3** includes standard half-inch spaced line hole punchings **31** extending lengthwise of the carrier sheet **3** adjacent its edges, for engagement by a tractor feed device. The carrier sheet **3** is divided into panels **33** by transverse perforations **35**. Each panel **33** is illustratively seven inches long. When fanfolded along the perforations **35**, alternate perforations **35** are folded downwardly to form infolds **35***a* and upwardly to form outfolds **35***b*. As viewed in FIG. **1**, panels **33***a* having an infold **35***a* as their leading edge may be designated upper panels, and panels **33***b* having an outfold **35***b* as their leading edge may be designated lower panels.

The envelopes **5** are illustratively standard "No. 10" envelopes. The envelopes **5** include a body **51** of standard construction, a closure flap **53**, and a closure fold **55**. The body **51** is $9\frac{1}{2}''$ long and $4\frac{1}{8}''$ high. The closure flap **53** typically includes a pressure activated adhesive protected by a strippable tape or more commonly a moisture activated adhesive for sealing the envelope after the letter has been inserted in it. The closure fold **55** forms the upper edge of the envelope **5** when the flap **53** is closed. Illustratively, the envelopes **5** include a pre-printed return address **57**.

The letter sheets **7** are illustratively standard letterhead stationery of a standard $8\frac{1}{2}''$ by $11''$ size. A letterhead **71** is pre-printed or embossed at the upper end of each letter sheet **7**.

As shown at the left side of FIG. **1**, in the method of the present invention the carrier sheet may be extended flat for processing.

In the first step, indicated at A, first glue spots **81** are applied to each upper panel **33***a*, spaced about one-quarter inch behind infold **35***a*. The glue may be any of the standard strippable glues which are well known in the art.

In the next step, indicated at B, envelopes **5** are placed on the carrier sheet **3**. Each envelope **5** is positioned with its closure flap **53** opened, and the outside of the closure flap **53** is placed on the glue spots **81** on upper panel **33***a*. The closure fold **55** is positioned approximately $3/16''$ behind (i e , on the .upper panel side of) its associated infold **35***a* in the carrier sheet **3**. The major part of the body **51** of the envelope is positioned over the preceding lower panel **35***a* (i.e., the panel to the right of it as viewed in FIG. **1**).

In the next step, indicated at C, second glue spots **83** are applied to each upper panel **33***a* at a position trailing the closure flap **53** attached to that panel. In this embodiment, the glue spots **83** trail the infold **35***a* by about $3\frac{3}{4}''$. The glue spots **83** are preferably of the same glue as the spots **81**.

In the next step, indicated at D, letter sheets **7** are placed on the carrier sheet **3**. Each letter sheet **7** is positioned with its letterhead **71** forward, and the upper (forward) edge **73** of the letter sheet is placed on the glue spots **83** on upper panel **33***a*. The upper (forward) edge **73** is positioned approximately $3\ 11/16''$ behind its associated infold **35***a* in the carrier sheet **3**. The letter sheet **7** extends across the entire trailing lower panel **33***b* (i.e., across the trailing outfold **35***b* of the panel **33***a* to which it is affixed and across the trailing infold of the succeeding lower panel **33***b*). It will be seen that the letter sheet **7** overlaps the entire height of the body **51** and a portion of the closure flap **53** of the succeeding envelope **5**. More precisely, the lower (trailing) edge **75** of the letter sheet **7** extends beyond (i.e., to the left of, as viewed in FIG. **1**) the succeeding infold **35***a* by $11/16''$ and extends beyond the infold of the succeeding envelope by $\frac{1}{2}''$.

In the final step of producing the carrier sheet system of the present invention, the envelopes **5** are closed by fanfolding the carrier sheet **3**. This step is indicated generally at E. As the carrier sheet **3** is fanfolded, the letter sheets **7** are lifted from the lower panels **35***b*, and the envelopes **5** are folded along closure flap folds **55** by the adjacent infolds **35***a*. When the envelopes **5** have been closed, the envelopes **5** overlap the succeeding letter sheets **7**, and the lower margins of the envelopes **5** extend $\frac{5}{8}''$ beyond the upper edges **73** of the letter sheets **7**.

It will be seen that the process of the present invention does not require lifting of one document to permit affixing of the forward edge of the succeeding document. Therefore, the process is amenable to be carried out by high speed equipment if desired

The resulting carrier sheet system **1** is shown in FIG. **2** in a folded form for transportation and storage, with the uppermost envelopes and letter sheet **7** extended. In FIG. **3** the system **1** is shown in an extended form, as might be the immediate input or output of a word processor printer.

As shown in FIG. **2**, the carrier sheet system **1** includes the fanfolded carrier sheet **3**, to which are affixed alternating envelopes **5** and letter sheets **7**. Each envelope is closed, and the body of the envelope overlaps a letter sheet attached to the same panel of the carrier sheet. Each envelope is closed and the closure flap fold at the top of the envelope is adjacent and parallel to an infold in the carrier sheet. Each letter sheet extends beyond the lower margin of the panel to which it is

attached, by a distance greater than the length of the succeeding panel of the carrier sheet. Therefore, when the carrier sheet is extended as shown in FIG. **3**, the letter sheets overlap succeeding envelopes, so that the letter sheets and envelopes are continuously overlapped. Because of the method of producing the carrier sheet system of the invention, not only are the envelopes and letter sheets continuously overlapped, but each may overlap the glue spots of the succeeding document. Also because of the method of the present invention, the carrier sheet system may utilize a wide variety of letter sheets and envelopes, including pre-existing printed or embossed stationery.

Numerous variations in the carrier sheet method and system of the present invention, within the scope of the appended claims, will occur to those skilled in the art in light of the foregoing disclosure.

Merely by way of example, the letter sheet **7** may be a multiple layer snap set, with or without carbon paper. The positioning of the envelopes and letter sheets on each panel may be varied considerably. For example, the upper edge of the envelope **5** could be positioned about 2″ below an infold **35***a*, and the letter sheet **7** could then be positioned about 5½″ below the infold **35***a*. So long as the total length of succeeding panels **33***a* and **33***b* is less than the length of an overlapped envelope and letter sheet, the dimensions of the envelopes, letter sheets and carrier sheet panels may be substantially varied, as may the amount of overlap between documents.

If desired, each of the panels **33***a* and **35***b* may be folded in half to form an extra-short form carrier system as shown in FIG. **4**. It will be seen that all of the original folds **35** thus become infolds **135***a*. Each envelope **105** is then affixed immediately below an infold **135***a*, and each letter sheet **107** is affixed immediately above the succeeding outfold **135***b* on the "semi-panel" **133***a*. Three succeeding semi-panels **133***b*, **133***c* and **133***d* are left without attachment. This arrangement is bulkier than the preferred embodiment, but simplifies removal of the envelopes and letter sheets individually or as a set, because both extend beyond the carrier sheet when it is folded.

Additional glue spots may be applied to the documents or to the carrier sheet under the documents. For example, it may be highly advantageous to apply additional glue spots, at location A in FIG. **1**, about two inches behind the glue spots **81** which hold the envelope flap **53**. Complementary glue spots may simultaneously be applied to the back of the envelope **5**. When the envelope **5** is closed, the complementary glue spots hold the envelope **5** to the carrier sheet **3**. Therefore, the envelope remains closed as it passes through the word processor printer, and the carrier sheet is easily folded as it emerges from the word processor.

These variations are merely illustrative.

I claim:

1. A carrier sheet system characterized by continuously overlapped envelopes and letter sheets, said system comprising

a fanfolded carrier sheet, said carrier sheet comprising a plurality of panels fanfolded to form alternate upper and lower panels connected by alternate infolds and outfolds,

a plurality of closed envelopes affixed to upper panels of said carrier sheet, said envelopes comprising a body part and a closure flap connected to the body part along a closure flap fold,

a plurality of separate letter sheets affixed to said upper panels of said carrier sheet to which said envelopes are affixed,

said closure flaps of said envelopes being affixed to said carrier sheet with said closure flap folds parallel to infolds between carrier sheet panels, said bodies of said envelopes overlapping the said letter sheets affixed to corresponding panels of said carrier sheet,

said letter sheets extending a distance beyond the panels to which they are mounted by a distance sufficient that said letter sheets and said envelopes are continuously overlapped when said carrier sheet is extended.

2. The carrier sheet system of claim **1** wherein upper ends of said letter sheets are affixed to said carrier sheet under said envelopes.

3. The carrier sheet system of claim **2** wherein said envelopes are preprinted with return addresses and said letter sheets are preprinted with letterheads.

4. The carrier sheet system of claim **2** wherein said envelope closure flaps are closely adjacent said infolds.

5. The carrier sheet system of claim **2** wherein each of said panels is shorter than either said envelopes or said letter sheets, and wherein said letter sheets extend a distance beyond the panels to which they are affixed by a distance greater than the length of three succeeding panels, the next succeeding envelope and letter sheet being affixed to a panel separated by three intervening panels.

6. A carrier sheet system characterized by a carrier sheet, a plurality of closed envelopes affixed to said carrier sheet, a plurality of separate letter sheets affixed to said carrier sheet, said envelopes overlapping succeeding said letter sheets and said letter sheets overlapping succeeding said envelopes when said carrier sheet is extended, whereby said envelopes and letter sheets are continuously overlapped when said carrier sheet is extended.

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